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DICTIONARY FILE UPDATES: 17 JAN 2007 HIGHEST RN 917745-84-7

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<http://www.cas.org/ONLINE/UG/regprops.html>

=> s vinyl ethylene carbonate
76718 VINYL
102812 ETHYLENE
36516 CARBONATE
L1 28 VINYL ETHYLENE CARBONATE
(VINYL (W) ETHYLENE (W) CARBONATE)

=> s VINYLENE CARBONATE
3302 VINYLENE
36516 CARBONATE
L2 67 VINYLENE CARBONATE
(VINYLENE (W) CARBONATE)

=> s sulfolane
L3 120 SULFOLANE

FILE 'CAPLUS' ENTERED AT 16:37:23 ON 18 JAN 2007
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FILE LAST UPDATED: 17 Jan 2007 (20070117/ED)

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<http://www.cas.org/infopolicy.html>

=> s 11 (p) 12 (p) 13
237 L1
1346 L2
5080 L3
L4 0 L1 (P) L2 (P) L3

=> s 11 and 12 and 13 and battery
237 L1
1346 L2
5080 L3
130373 BATTERY
L5 6 L1 AND L2 AND L3 AND BATTERY

=> d 15 1-6 ibib kwic

L5 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:1106707 CAPLUS
DOCUMENT NUMBER: 143:370054
TITLE: Overcharge protection for electrochemical cells
INVENTOR(S): Amine, Khalil; Liu, Jun; Jambunathan, Krishnakumar; Peterson, Brian Keith; Dantsin, Gennady
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 16 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005227143	A1	20051013	US 2005-97810	20050401
EP 1587158	A2	20051019	EP 2005-7806	20050408
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, BA, HR, IS, YU				
CN 1700505	A	20051123	CN 2005-10076226	20050408
KR 2006047152	A	20060518	KR 2005-29732	20050409
JP 2005302727	A	20051027	JP 2005-114017	20050411
PRIORITY APPLN. INFO:			US 2004-561193P	P 20040409
			US 2005-97810	A 20050401

OTHER SOURCE(S): MARPAT 143:370054
ST electrochem cell overcharge protection; lithium battery overcharge protection
IT Battery electrolytes
Redox potential
(overcharge protection for electrochem. cells)
IT 96-47-9, 2-Methyltetrahydrofuran 96-48-0, γ -Butyrolactone

96-49-1, Ethylene carbonate 105-37-3, Ethyl propionate 105-54-4, Ethyl butyrate 105-58-8, Diethyl carbonate 108-29-2, γ -Valerolactone 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 112-49-2, Triglyme 112-60-7, Tetraethylene glycol 115-10-6, Dimethylether 126-33-0, Sulfolane 141-78-6, Ethyl acetate, uses 497-26-7, 2-Methyl-1,3-dioxolane 539-82-2, Ethyl valerate 554-12-1, Methyl propionate 590-01-2, Butyl propionate 616-38-6, Dimethyl carbonate 623-42-7, Methyl butyrate 623-53-0, Ethyl Methyl carbonate 623-96-1, Dipropyl carbonate 629-14-1, 1,2-Diethoxyethane 646-06-0, 1,3-Dioxolane 872-36-6, Vinylene carbonate 1072-47-5, 4-Methyl-1,3-dioxolane 1513-87-7, Bis(2,2,2-trifluoroethyl)carbonate 2797-28-6, Lithium tetrakis(pentafluorophenyl)borate 3967-54-2, Chloroethylene carbonate 4427-96-7, Vinyl ethylene carbonate 7550-35-8, Lithium bromide 7791-03-9, Lithium perchlorate 14283-07-9, Lithium tetrafluoroborate 14485-20-2, Lithium tetraphenylborate 18424-17-4, Lithium hexafluoroantimonate 19836-78-3, 3-Methyl-2-oxazolidinone 21324-40-3, Lithium hexafluorophosphate 25322-68-3, Polyethylene glycol 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate 37830-90-3, Dimethylvinylene carbonate 56525-42-9, Methyl propyl carbonate 90076-65-6 132843-44-8 154496-21-6 156783-95-8 866482-08-8 866482-09-9 866482-10-2 866482-11-3 866482-12-4 866482-13-5 866482-14-6
 RL: DEV (Device component use); USES (Uses)
 (overcharge protection for electrochem. cells)

L5 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:1020203 CAPLUS
 DOCUMENT NUMBER: 142:9224
 TITLE: Nonaqueous electrolyte battery
 INVENTOR(S): Nakagawa, Hiroe; Inamasu, Tokuo; Nukuda, Toshiyuki
 PATENT ASSIGNEE(S): Yuasa Corporation, Japan
 SOURCE: PCT Int. Appl., 30 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004102700	A1	2004-03-25	WO 2004-JP3612	20040318
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CN 1788370	A	20040614	CN 2004-80012785	20040318

PRIORITY APPLN. INFO.: JP 2003-137867 A 20030515
 JP 2003-166455 A 20030611
 REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Nonaqueous electrolyte battery
 AB A nonaq. electrolyte battery excelling in battery performance in high-temperature environment. In particular, the disclosed nonaq. electrolyte battery including a pos. electrode and a neg. electrode and, interposed therebetween, a nonaq. electrolyte containing at

least one cyclic carbonate having a carbon to carbon π bond and at least one cyclic organic compound having an S=O bond, is characterized in that the main component of pos. electrode active substance as a constituent of the pos. electrode is a sintered oxide of the formula $\text{Li}_m \text{Ni}_b \text{M}_1-b \text{O}_2$ (wherein M represents at least one element of Groups 1 to 16 [sic] excluding Ni, Li and O, and $0 \leq m \leq 1.1$; $0 < b < 1$) having lamellar rock salt crystal structure. Preferred oxide has the formula $\text{Li}_m \text{M}_a \text{Ni}_b \text{Co}_c \text{O}_2$ ($0 \leq m \leq 1.1$; $a+b+c = 1$; $|a-b| \leq 0.05$; $a \neq 0$ and $b \neq 0$; $0 \leq c < 1$).

ST nonaq electrolyte battery cathode active oxide
 IT Battery cathodes
 (lithium battery; lamellar structured mixed oxides as cathode active substance for)
 IT 532934-40-0P, Cobalt lithium manganese nickel oxide ($\text{Co}_0.16 \text{LiMn}_0.42 \text{Ni}_0.4202$)
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (cathode active substance for nonaq. electrolyte lithium secondary battery)
 IT 128975-24-6, Lithium manganese nickel oxide ($\text{Li}_2 \text{MnNiO}_4$) 193215-51-9,
 Cobalt lithium manganese nickel oxide ($\text{Co}_0.15 \text{LiMn}_0.3 \text{Ni}_0.55 \text{O}_2$)
 214473-76-4, Cobalt lithium manganese nickel oxide ($\text{Co}_0.9 \text{LiMn}_0.05 \text{Ni}_0.05 \text{O}_2$)
 390362-01-3, Cobalt lithium manganese nickel oxide ($\text{Co}_0.5 \text{LiMn}_0.25 \text{Ni}_0.25 \text{O}_2$)
 686740-96-5, Cobalt lithium manganese nickel oxide
 ($\text{Co}_0.67 \text{LiMn}_0.17 \text{Ni}_0.17 \text{O}_2$) 763122-46-9, Cobalt lithium manganese nickel oxide ($\text{Co}_0.84 \text{LiMn}_0.08 \text{Ni}_0.08 \text{O}_2$)
 RL: TEM (Technical or engineered material use); USES (Uses)
 (cathode active substance for nonaq. electrolyte lithium secondary battery)
 IT 126-33-0, Sulfolane 872-36-6, Vinylene carbonate
 1120-71-4, 1,3-Propanesultone 1633-83-6, 1,4-Butanesultone 2171-74-6,
 1,3-Benzodioxol-2-one 3741-38-6, Ethylene sulfite 4427-96-7,
 Vinylethylene carbonate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (lithium secondary battery nonaq. electrolyte composition containing)

L5 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:802392 CAPLUS
 DOCUMENT NUMBER: 141:280433
 TITLE: Nonaqueous electrolyte secondary battery
 INVENTOR(S): Kida, Yoshinori; Yanagida, Katsunori; Yanai, Atsushi;
 Ikemachi, Takaaki; Nohma, Toshiyuki
 PATENT ASSIGNEE(S): Japan
 SOURCE: U.S. Pat. Appl. Publ., 6 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004191636	A1	20040930	US 2004-809842	20040326
JP 2004296389	A	20041021	JP 2003-90505	20030328

PRIORITY APPLN. INFO.:

TI Nonaqueous electrolyte secondary battery
 AB A nonaq. electrolyte secondary battery includes a pos. electrode containing a pos. electrode active material, a neg. electrode containing a carbon

material as a neg. electrode active material, and a nonaq. electrolyte containing a solvent and a solute wherein sulfolane is included in the nonaq. electrolyte as a solvent and vinyl ethylene carbonate and vinylene carbonate or a derivative of the vinylene carbonate are added to the nonaq.

mine

electrolyte.
 ST nonaq electrolyte secondary battery
 IT Battery electrolytes
 Pitch
 Secondary batteries
 (nonaq. electrolyte secondary battery)
 IT Carbonaceous materials (technological products)
 RL: DEV (Device component use); USES (Uses)
 (nonaq. electrolyte secondary battery)
 IT Styrene-butadiene rubber, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolyte secondary battery)
 IT 96-48-0, γ -Butyrolactone 126-33-0, Sulfolane 7440-50-8,
 Copper, uses 7782-42-5, Graphite, uses 12031-65-1, Lithium nickel
 oxide linio₂ 12057-17-9, Lithium manganese oxide limn₂o₄ 12190-79-3,
 Cobalt lithium oxide colio₂ 14283-07-9, Lithium tetrafluoroborate
 RL: DEV (Device component use); USES (Uses)
 (nonaq. electrolyte secondary battery)
 IT 78-42-2, Trioctyl phosphate 872-36-6, Vinylene carbonate
 872-36-6D, Vinylene carbonate, derivative 4427-96-7, Vinyl
 ethylene carbonate 9000-11-7, Cmc
 RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolyte secondary battery)
 IT 9003-55-8
 RL: MOA (Modifier or additive use); USES (Uses)
 (styrene-butadiene rubber; nonaq. electrolyte secondary battery
)

L5 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2004:451119 CAPLUS
 DOCUMENT NUMBER: 140:426152
 TITLE: Manufacture of nonaqueous electrolyte secondary
 battery using improved initial charging
 process
 INVENTOR(S): Iwahisa, Masahiro; Sato, Asako; Hashimoto, Minoru
 PATENT ASSIGNEE(S): Toshiba Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004158213	A	20040603	JP 2002-320154	20021101
PRIORITY APPLN. INFO.:			JP 2002-320154	20021101
TI	Manufacture of nonaqueous electrolyte secondary battery using improved initial charging process			
AB	Disclosed is the manufacture of the nonaq. electrolyte secondary battery comprising pos. and neg. electrodes and ≥ 1 nonaq. electrolyte selected from ethylene sulfite, propylene sulfite, 1,3-propene sultone, propane sultone, 1,4-butylene sultone, sulfolane, phenylethyl carbonate, catechol carbonate, vinylene carbonate, and vinylethylene carbonate, wherein an initial charging step in the manufacture uses a d.c. voltage overlapped with an a.c. voltage with the amplitude of ≤ 10 mV.			
ST	nonaq electrolyte secondary battery initial charging process			
IT	Secondary batteries (lithium; manufacture of nonaq. electrolyte secondary battery using improved initial charging process)			
IT	Secondary batteries (manufacture of nonaq. electrolyte secondary battery using			

improved initial charging process)
 IT 126-33-0, Sulfolane 872-36-6, Vinylene carbonate
 1120-71-4, Propane sultone 1469-73-4, Propylene sulfite 3741-38-6,
 Ethylene sulfite 3878-46-4, Phenylethyl carbonate 4427-96-7,
 Vinylethylene carbonate
 RL: DEV (Device component use); USES (Uses)
 (manufacture of nonaq. electrolyte secondary battery using
 improved initial charging process)

L5 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2002:66770 CAPLUS
 DOCUMENT NUMBER: 136:121064
 TITLE: Nonaqueous electrolyte lithium secondary
 battery
 INVENTOR(S): Iwamoto, Kazuyu; Oura, Takafumi; Hatazaki, Makino;
 Yoshizawa, Hiroshi; Sonoda, Kumiko; Nakanishi, Shinji
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan
 SOURCE: Eur. Pat. Appl., 31 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1174940	A1	20020123	EP 2001-117048	20010712
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002033119	A	20020131	JP 2000-215518	20000717
JP 2002033120	A	20020131	JP 2000-215519	20000717
JP 2002033124	A	20020131	JP 2000-215520	20000717
US 2002039677	A1	20020404	US 2001-901130	20010710
US 6958198	B2	20051025		
CN 1333580	A	20020130	CN 2001-123135	20010717
PRIORITY APPLN. INFO.:			JP 2000-215518	A 20000717
			JP 2000-215519	A 20000717
			JP 2000-215520	A 20000717

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Nonaqueous electrolyte lithium secondary battery
 ST nonaq electrolyte lithium secondary battery
 IT Carboxylic acids, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (C2-20, fluoroalkyl; nonaq. electrolyte lithium secondary
 battery)
 IT Sulfonic acids, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (alkanesulfonic, sodium salts, fluoro-; nonaq. electrolyte lithium
 secondary battery)
 IT Anhydrides
 Ethers, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (cyclic; nonaq. electrolyte lithium secondary battery)
 IT Carboxylic acids, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (esters, cyclic; nonaq. electrolyte lithium secondary battery
)
 IT Secondary batteries
 (lithium; nonaq. electrolyte lithium secondary battery)
 IT Battery electrodes
 Battery electrolytes
 Surface free energy

Surface tension
 Surfactants
 (nonaq. electrolyte lithium secondary battery)
 IT Carbonaceous materials (technological products)
 RL: DEV (Device component use); USES (Uses)
 (nonaq. electrolyte lithium secondary battery)
 IT Cyclic compounds
 RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolyte lithium secondary battery)
 IT Lactones
 RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolyte lithium secondary battery)
 IT Fluoropolymers, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (nonaq. electrolyte lithium secondary battery)
 IT 463-79-6D, Carbonic acid, esters 1343-98-2D, Silicic acid, esters
 7664-38-2D, Phosphoric acid, esters 7664-93-9D, Sulfuric acid, esters
 7697-37-2D, Nitric acid, esters 7782-77-6D, Nitrous acid, esters
 7782-99-2D, Sulfurous acid, esters 10043-35-3D, Boric acid, esters
 13598-36-2D, Phosphorous acid, esters
 RL: MOA (Modifier or additive use); USES (Uses)
 (cyclic; nonaq. electrolyte lithium secondary battery)
 IT 79-20-9, Methyl acetate 85-44-9, Phthalic anhydride 96-48-0,
 γ-Butyrolactone 96-49-1, Ethylene carbonate 105-54-4, Ethyl
 butyrate 105-58-8, Diethyl carbonate 108-29-2, γ-Valerolactone
 108-30-5, Succinic anhydride, uses 108-32-7, Propylene carbonate
 109-60-4, n-Propyl acetate 123-86-4, Butyl acetate 140-11-4, Benzyl
 acetate 141-78-6, Ethyl acetate, uses 517-23-7, α-Acetyl-γ-
 butyrolactone 540-42-1, Isobutyl propionate 554-12-1, Methyl
 propionate 616-02-4, Citraconic anhydride 616-38-6, Dimethyl carbonate
 623-53-0, Ethylmethyl carbonate 1679-47-6, α-Methyl-γ-
 butyrolactone 2170-03-8, Itaconic anhydride 2453-03-4,
 1,3-Dioxan-2-one 7782-42-5, Graphite, uses 9002-88-4, Polyethylene
 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium
 hexafluorophosphate 52627-24-4, Cobalt lithium oxide 52876-41-2,
 Trimethylene borate 90076-65-6 132843-44-8 201416-30-0, .
 4,5-Diphenyl-1,3,2-dioxathiole-2,2-dioxide 389604-01-7
 RL: DEV (Device component use); USES (Uses)
 (nonaq. electrolyte lithium secondary battery)
 IT 77-79-2, Sulfolene 102-09-0, Diphenyl carbonate 126-33-0,
 Sulfolane 463-79-6D, Carbonic acid, ester 822-38-8, Ethylene
 trithiocarbonate 872-36-6, Vinylene carbonate 872-93-5
 , 3-MethylSulfolane 930-35-8, Vinylene trithiocarbonate 1120-71-4,
 Propanesultone 1600-44-8 1633-83-6, 1,4-Butanesultone 2171-74-6,
 1,3-Benzodioxol-2-one 2965-52-8 3741-38-6, Ethylene sulfite
 3967-54-2, Chloroethylene carbonate 4236-15-1 4427-92-3,
 Phenylethylene carbonate 4427-96-7, Vinylethylene carbonate
 6255-58-9 7440-44-0, Carbon, uses 7704-34-9D, Sulfur, ester
 16761-08-3 21240-34-6 37228-47-0, Ethylene phosphite
 40630-61-3 52550-45-5 75032-95-0, Disodium N-
 perfluorooctanesulfonylglutamate 75046-16-1 122036-85-5 324547-56-0
 366787-88-4
 RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolyte lithium secondary battery)
 IT 24937-79-9, Pvdf
 RL: TEM (Technical or engineered material use); USES (Uses)
 (nonaq. electrolyte lithium secondary battery)

L5 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2001:759631 CAPLUS
 DOCUMENT NUMBER: 135:306245
 TITLE: Nonaqueous electrolyte secondary battery
 INVENTOR(S): Hatazaki, Makino; Iwamoto, Kazuya; Sonoda, Kumiko;

PATENT ASSIGNEE(S): Yoshizawa, Hiroshi
 Matsushita Electric Industrial Co., Ltd., Japan
 SOURCE: Eur. Pat. Appl., 13 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1146586	A2	20011017	EP 2001-303366	20010410
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001297790	A	20011026	JP 2000-109268	20000411
US 2001038949	A1	20011108	US 2001-828941	20010410
CN 1317845	A	20011017	CN 2001-116833	20010411
PRIORITY APPLN. INFO.:			JP 2000-109268	A 20000411

OTHER SOURCE(S): MARPAT 135:306245

TI Nonaqueous electrolyte secondary battery
 AB A nonaq. electrolyte secondary battery having excellent
 charge/discharge characteristics and a long cycle life, and generating a
 smaller amount of gas during storage than conventional batteries, comprises
 a pos. electrode; a neg. electrode; and a nonaq. electrolyte comprising a
 nonaq. solvent and a solute dissolved therein. This improvement is
 achieved by adding to the nonaq. electrolyte a surface active agent
 represented by the general formula : X-CnF2n-Y-(CH₂-CH₂)_m-Z; where X is H
 or F, Y is -CONH- or -SO₂NR- in which R is an alkyl group, Z is -OH, -CH₃,
 -PO₃W₂ or -SO₃W in which W is an alkali metal, 4 ≤ n ≤ 10,
 and 20 ≤ m ≤ 100.
 ST battery nonaq electrolyte secondary; surfactant additive
 battery nonaq electrolyte secondary
 IT Oxides (inorganic), uses
 RL: DEV (Device component use); USES (Uses)
 (lithiated; nonaq. electrolyte secondary battery)
 IT Battery electrolytes
 Secondary batteries
 Surfactants
 (nonaq. electrolyte secondary battery)
 IT Carbonaceous materials (technological products)
 RL: DEV (Device component use); USES (Uses)
 (nonaq. electrolyte secondary battery)
 IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 623-53-0,
 Ethyl methyl carbonate
 RL: DEV (Device component use); USES (Uses)
 (nonaq. electrolyte secondary battery)
 IT 77-79-2, Sulfolene 96-48-0, γ-Butyrolactone 102-09-0, Diphenyl
 carbonate 105-58-8, Diethyl carbonate 126-33-0, Sulfolane
 274-17-9, 1,3,2-Benzodioxathiole 420-12-2, Ethylene sulfide 616-38-6,
 Dimethyl carbonate 822-38-8, Ethylene trithiocarbonate 872-36-6
 , Vinylene carbonate 872-93-5, 3-Methylsulfolane 930-35-8,
 1,3-Dithiole-2-thione 1120-71-4, Propanesultone 1633-83-6,
 1,4-Butanesultone 2171-74-6, 1,3-Benzodioxol-2-one 3967-54-2,
 Chloroethylene carbonate 4427-92-3, Phenylethylene carbonate
 4427-96-7, Vinylethylene carbonate 16761-08-3
 21240-34-6 39700-44-2 122036-85-5 324547-56-0 366784-73-8
 366787-88-4
 RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolyte secondary battery)